Background: Readmissions can be defined as the return of a patient to a healthcare setting after a discharged. Attention has been mainly focused on readmissions following inpatient hospitalizations. In the outpatient setting, readmissions have been far less studied. Premature outpatient discharges can have negative impacts at multiple levels, as they may prolong disability, and increase the chance of disease chronication, the demands to the immediate patient’s support system, and healthcare resources utilization. As the first step in predicting outpatient readmission, the assessment of the individual patient’s risk could be useful to help identify those subjects at greatest risk, so, in a further step we could focus the delivery of an intervention in those patients to reduce their risk.

Objectives: To develop and validate a machine learning predictive model based on Random Forest, to estimate the risk of readmission following inpatient hospitalization, an outpatient rheumatology clinic after discharge (outpatient readmission).

Methods: Patients stored in a departmental electronic health record from April 1st, 2007 to November 30th, 2016, and followed-up until November 30th, 2017, were included in this study. Only readmissions taking place between 3 and 12 months after discharge were analyzed. Discharge episodes were split into training, validation and test datasets. Clinical and demographic variables, including diagnoses, treatments, quality of life, and comorbidities, were used as predictors. Models were developed using Random Forest in the training dataset, then the combination of several tuning parameters. Models that maximized the area under the receiver operating characteristic curve (ROC-AUC) in the validation set were tested in the test set. The model and maximizing AUC-ROC in the test dataset was considered as the best final model.

Results: 17,473 patients (18,117 discharges episodes) were analyzed and 1,960 (10.8%) discharges episodes were classified as outpatient readmissions. 48,654 models were finally developed. The best final model showed an AUC-ROC of 0.674 a sensitivity of 0.330 and a specificity of 0.867. The most relevant variables in the model were the number of diagnoses given at discharge, follow-up duration, age, number of previous discharges, previous corticosteroids use and disability.

Conclusion: We have developed a predictive model for outpatient readmission in a rheumatology setting. Clinical, demographic characteristics as well as medication and disability were the most important predictors.

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IDENTIFYING HEALTH LITERACY PROFILES OF RA AND SPA PATIENTS USING THE HEALTH LITERACY QUESTIONNAIRE

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Background: Delivery of rheumatological care is suggested to be compromised by patient health literacy. Prevalence of problematic health literacy in the Netherlands is estimated to be as high as 36%. ‘Health literacy represents the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health’ (Nutbeam, 1998).

A deeper understanding of diverse health literacy profiles of patients attending rheumatology clinics could facilitate development of interventions tailored to patients’ needs, in order to improve health outcomes and reduce inequalities.

Objectives: To identify health literacy strengths and weaknesses among patients with Spondyloarthrits (SpA) and Rheumatoid Arthritis (RA) attending a rheumatology clinic, and identify typical health literacy profiles based on these strengths and weaknesses.

Methods: Consecutive RA and SpA patients attending the outpatient clinic at Maastricht UMC+, the Netherlands, were invited to participate. Health literacy was assessed using the Health Literacy Questionnaire (HLQ), which includes nine dimensions (Figure 1). Socio-demographics and health-related characteristics were also collected. Hierarchical cluster analysis following Ward’s method identified clusters based on HLQ scale scores. This method groups subjects into a predefined number of clusters, based on smallest differences to the mean of all scales, creating minimal variance within each cluster, and maximum variance between clusters. Three researchers jointly examined twenty cluster solutions for meaningfulness by interpreting HLQ scales and patient characteristics. Meaningful clusters are translated into health literacy profiles using HLQ patterns and demographic data. A patient representative confirmed the identified profiles.

Results: In total, 133 patients with RA and 106 with SpA completed the questionnaire. Of these, 61% (n=146) were female, mean age was 61.6 (±13.3), 27% (n=65) lived alone, 11% (n=26) did not speak Dutch at